REMARKS

The Office action dated June 4, 2004 and the cited references have been carefully considered.

Status of the Claims

Claims 1-24 are pending. Claims 25-30 are new and recite subject matter already disclosed in the original application. Claim 21 is canceled. Therefore, claims 1-20 and 22-30 will be pending in the current prosecution following entry of the amendments.

Claim 4 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

Claims 1-3, 5, and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeuchi (U.S. Patent 4, 881,212). Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeuchi in view of Eberle et al. (U.S. Patent 5,779,644; hereinafter "Eberle"). Claims 6 and 7 are rejected under 103(a) as being unpatentable over Takeuchi in view of Goll (U.S. Patent 4,016,530). Claims 9-15 and 20-21 are rejected under 103(a) as being unpatentable over Takeuchi in view of Sano et al. (U.S. Patent 5,974,884; hereinafter "Sano"). Claim 17 is rejected under 103(a) as being unpatentable over Lee et al. (U.S. Patent 5,792,058; hereinafter "Lee"). Claims 18 and 19 are rejected under 103(a) as being unpatentable over Lee in view of Takeuchi. The Applicants respectfully traverse all of these rejections for the reasons set forth below.

Claim 22-24 are allowed. The Applicants wish to thank the Examiner for indicating that claims 22-24 are allowed.

Claim Rejection Under 35 U.S.C. § 112, Second Paragraph

Claim 4 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for including a both a broad range and a narrow range. Claim 4 has been amended to recite only one range, and, therefore now overcomes this rejection.

Claim Rejection Under 35 U.S.C. § 103(a)

Claims 1-3, 5, and 8

Claims 1-3, 5 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeuchi. The Applicants respectfully traverse this rejection because a combination of Takeuchi does not teach or suggest all of the elements of each of claims 1-3, 5 and 8.

"[T]he legal conclusion of obviousness [under 35 U.S.C. § 103(a)] requires that there be some suggestion, motivation, or teaching in the prior art whereby the person of ordinary skill would have selected *the* components that the inventor selected and used them to make the new device." *C.R. Bard, Inc. v. M3 Systems, Inc.*, 48 U.S.P.Q.2d 1225, 1231 (Fed. Cir. 1998) (emphasis added). Thus, in order for the prior art to render the claimed invention obvious, all of the elements thereof must be taught or suggested in the prior art. MPEP § 2143.03 (8th ed., Rev. 2, May 2004) ("To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.") Furthermore, the court has emphasized that "[w]hat must be found obvious to defeat the patentability of the claimed invention is the claimed combination." *The Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 U.S.P.Q.2d 1923, 1927 (Fed. Cir. 1990) (emphasis added).

Takeuchi discloses a matching layer that consists of unit layers, each consisting of a layer of a heavy metal and a layer of plastic. For example, Takeuchi states at column 1, lines 54-60 that "[e]ach unit layer also has a laminated structure consisting of heavy metal and plastic layers . . ." (emphasis added) and at column 3, lines 13-21 that "[i]ndividual unit layers that make up the acoustic impedance matching member can also be realized by depositing a heavy metal layer on top of the plastic layer . . .. The acoustic impedance of the individual unit layers is determined by the thickness ratio between heavy metal layer 52 and plastic layer 51" (emphasis added). Thus, each of Takeuchi's unit layer, which corresponds to the term "sublayer" in the instant claims, consists of a layer of metal and a film of plastic. Nowhere does Takeuchi teach or suggest that a unit layer comprises a plurality of materials having different impedance values, wherein one material is distributed in another material, as is recited in claims 1-3, 5, and 8. Therefore, Takeuchi does not teach or suggest all of the limitations of each of claims 1-3, 5, and 8.

Since Takeuchi does not teach or suggest all of the limitations of each of claims 1-3, 5, and 8, these claims are patentable over Takeuchi.

The Applicants respectfully traverse the Examiner's statement that "it would have been inherently obvious that the most preferable case would have been to provide a great many layers with the layers proximate the transducer and target having near to or equal to the acoustic impedance of same."

The requirement for a rejection under 35 U.S.C. § 103(a) is that the prior art must teach or suggest all of the limitations of the claim. MPEP § 2143.03 (8th ed., Rev. 2, May 2004).

Here, Takeuchi does not teach or suggest that the impedance value of the first sublayer is within 20 percent of the impedance value of the transducer element and that the impedance value of the last sublayer is within 20 percent of the impedance value of the target. Such recited advantageous conditions are not inherent in a matching layer. "[T]he inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown." *In re Spormann*, 363 F.2d 444, 448 (C.C.P.A. 1966). Since the recited conditions are not inherent in any matching layer, they cannot be obvious under the standard of 35 U.S.C. § 103(a).

Claim 4

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeuchi in view of Eberle. The Applicants respectfully traverse this rejection because a combination of Takeuchi and Eberle does not teach or suggest all of the limitations of claim 4.

The requirement for a rejection under 35 U.S.C. § 103(a) is that the prior art must teach or suggest all of the limitations of the claim. MPEP § 2143.03 (8th ed., Rev. 2, May 2004).

As pointed out above, Takeuchi does not teach or suggest sublayers, each of which comprises a plurality of materials, wherein one material is distributed in another material. Eberle discloses a matching layer consisting of only one layer of epoxy material. Column 7, lines 66-67; column 10, lines 26-27 and lines 45-46. Nowhere does Eberle teach or suggest that his single layer has more than one material. Therefore, a combination of Takeuchi and Eberle does not teach or suggest all of the limitations of claim 4.

Since a combination of Takeuchi and Eberle does not teach or suggest all of the limitations of claim 4, this claim is patentable under 35 U.S.C. § 103(a) over Takeuchi in view of Eberle.

Claims 6 and 7

Claims 6 and 7 are rejected under 103(a) as being unpatentable over Takeuchi in view of Goll. The Applicants respectfully traverse this rejection because a combination of Takeuchi and Goll does not teach or suggest all of the limitations of each of claims 6 and 7.

The requirement for a rejection under 35 U.S.C. § 103(a) is that the prior art must teach or suggest all of the limitations of the claim. MPEP § 2143.03 (8th ed., Rev. 2, May 2004).

As pointed out above, Takeuchi does not teach or suggest sublayers, each of which comprises a plurality of materials, wherein one material is distributed in another material. Goll discloses only that his acoustic coupler has two layers, each layer having a thickness equal to an odd multiple of quarter wavelengths. Therefore, Goll's acoustic coupler always has an even multiple of quarter wavelengths (an even number multipled by another integer gives an even number).

Since Takeuchi fails to teach or suggest a limitation of each of claims 6 and 7, adding Goll to show an even multiple of quarter wavelengths takes the combination of Takeuchi and Goll even further from the instant claims.

Since a combination of Takeuchi and Goll does not teach or suggest all of the limitations of each of claims 6 and 7, these claims are patentable under 35 U.S.C. § 103(a) over Takeuchi and Goll.

Claims 9-15 and 20-21

Claims 9-15 and 20-21 are rejected under 103(a) as being unpatentable over Takeuchi in view of Sano. Claim 21 has been canceled, and therefore, the rejection of this claim is now moot. The Applicants respectfully traverse this rejection because a

combination of Takeuchi and Sano does not teach or suggest all of the limitations of each of claims 9-15 and 20.

The requirement for a rejection under 35 U.S.C. § 103(a) is that the prior art must teach or suggest all of the limitations of the claim. MPEP § 2143.03 (8th ed., Rev. 2, May 2004).

As pointed out above, Takeuchi does not teach or suggest sublayers, each of which comprises a plurality of materials, wherein one material is distributed in another material. Sano discloses only a matching layer consisting of only one layer (Sano's numeral 3). Furthermore, neither Takeuchi nor Sano teaches or suggests a total thickness of one quarter wavelength or an odd multiple of quarter wavelengths, as is recited in claims 10-12.

Since a combination of Takeuchi and Sano does not teach or suggest all of the limitations of claims 9-15 and 20, these claims are patentable under 35 U.S.C. § 103(a) over Takeuchi in view of Sano.

Claim 17

Claim 17 is rejected under 103(a) as being unpatentable over Lee. The Applicants respectfully traverse this rejection because Lee does not teach or suggest all of the limitations of claim 17.

The requirement for a rejection under 35 U.S.C. § 103(a) is that the prior art must teach or suggest all of the limitations of the claim. MPEP § 2143.03 (8th ed., Rev. 2, May 2004).

The Examiner even admitted that Lee does not disclose a plurality of sublayers having monotonically changing impedance value, as is recited in claim 17. Thus, Lee does not teach or suggest a such a plurality of sublayers, each of which comprises particles of one material distributed in another material, as is recited in claim 17. Therefore, Lee does not teach or suggest all of the limitations of claim 17.

Since Lee does not teach or suggest all of the limitations of claim 17, Lee cannot render this claim obvious.

The Applicants respectfully traverse the Examiner's statement that "it would have been inherently obvious to have" a plurality of layers. As the Applicants respectfully pointed out above, the Court of Customs and Patent Appeal held that inherency and obviousness are distinct concepts, and something cannot be obvious when it is unknown. Therefore, a claim cannot be rejected because it is "inherently obvious."

Claims 18 and 19

Claims 18 and 19 are rejected under 103(a) as being unpatentable over Lee in view of Takeuchi. The Applicants respectfully traverse this rejection because a combination of Takeuchi and Lee does not teach or suggest all of the limitations of claims 18 and 19.

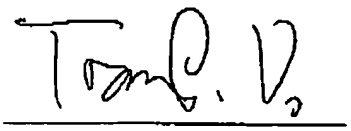
The requirement for a rejection under 35 U.S.C. § 103(a) is that the prior art must teach or suggest all of the limitations of the claim. MPEP § 2143.03 (8th ed., Rev. 2, May 2004).

As pointed out above, Takeuchi does not teach or suggest sublayers, each of which comprises a plurality of materials, wherein one material is distributed in another material. Lee does not teach or suggest a plurality of sublayers having monotonically changing impedance value, each of which comprises particles of one material distributed in another material. Thus, a combination of Takeuchi and Lee still does not teach or suggest a plurality of sublayers having monotonically changing impedance value, each of which comprises one material distributed in another material.

Since a combination of Takeuchi and Lee still does not teach or suggest all of the limitations of each of claims 18 and 19, these claims are patentable under 35 U.S.C. § 103(a) over Takeuchi in view of Lee.

In view of the above, it is submitted that the claims are patentable and in condition for allowance. Reconsideration of the rejection is requested. Allowance of claims at an early date is solicited.

Respectfully submitted,



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